

CLAIMS

1. A digital watermark-containing moving image transmission system, comprising:
  - 5 a moving image reproducing apparatus that includes
    - moving image input means for inputting one type of moving image data;
    - watermark-containing data generating
    - 10 means for embedding a plurality of differing sets of digital watermark information into the input moving image data, creating a plurality of watermark-containing moving image data series, and encoding the created watermark-containing moving image data
    - 15 series;
    - ID information adding means for generating a new moving image data series from the watermark-containing moving image data series based on addition ID information including coded
    - 20 information corresponding to at least one of moving image identification information, time/date information, and user information; and
    - reproducing means for decoding and displaying the moving image data series generated by
    - 25 the ID information adding means; and
    - an addition ID information detecting apparatus that divides the moving image data series displayed by the moving image reproducing apparatus into a plurality of regions, and detects the
    - 30 addition ID information for each of the divided regions using a digital watermark detecting circuit.
2. A digital watermark-containing moving image transmission system, comprising
  - 35 at least one image server that includes
    - moving image input means for inputting one type of moving image data;

watermark-containing data generating means for embedding a plurality of differing sets of digital watermark information into the input moving image data, creating a plurality of watermark-  
5 containing moving image data series, and encoding the created watermark-containing moving image data series;

ID information adding means for generating a new moving image data series from the  
10 watermark-containing moving image data series based on addition ID information including coded information corresponding to at least one of moving image identification information, time/date information, and user information; and

15 moving image delivering means for delivering the moving image data series generated by the ID information adding means to a network;

at least one terminal that includes reproducing means for decoding and displaying the  
20 moving image data series generated by the ID information adding means; and

an addition ID detecting apparatus that divides the moving image data series displayed by the terminal into a plurality of regions, and  
25 detects the addition ID information for each of the divided regions using a digital watermark detecting circuit.

3. A digital watermark-containing moving  
30 image transmission system comprising:

at least one image server that includes moving image input means for inputting one type of moving image data; and

35 watermark-containing data generating means for embedding a plurality of differing sets of digital watermark information into the input moving image data, creating a plurality of watermark-

containing moving image data series, encoding the  
created watermark-containing moving image data  
series, and transmitting the encoded watermark-  
containing moving image data series to a network;

5           at least one delivery network node that  
includes

          ID information adding means for  
generating a new moving image data series from the  
watermark-containing moving image data series based  
10   on addition ID information including coded  
information corresponding to at least one of moving  
image identification information, time/date  
information, and user information; and

          moving image delivering means for  
15   delivering the moving image data series generated by  
the ID information adding means to the network;

          at least one terminal that includes  
reproducing means for decoding and displaying the  
moving image data series received via the network;  
20   and

          an addition ID detecting apparatus that  
divides the moving image data series displayed by  
the terminal into a plurality of regions, and  
detects the addition ID information for each of the  
25   divided regions using a digital watermark detecting  
circuit.

          4. The digital watermark-containing  
moving image transmission system as claimed in any  
30   one of claims 1 through 3, wherein

          the ID information adding means is  
configured to successively select one from a  
plurality of image frames of the plural moving image  
data series based on the addition ID information and  
35   output the successively selected image frames as the  
new moving image data series.

5. The digital watermark-containing moving image transmission system as claimed in any one of claims 1 through 3, wherein

the ID information adding means is  
5 configured to successively select one group from a plurality of groups of image frames of the plural moving image data series based on the addition ID information and output the successively selected group of image frames as the new moving image data  
10 series.

6. The digital watermark-containing moving image transmission system as claimed in any one of claims 1 through 3, wherein

15 each of a plurality of image frames of the plural moving image data series is spatially divided into a plurality of regions, and a plurality of divided region moving image data series are generated for each of the divided regions; and  
20 the ID information adding means is configured to successively select one from a plurality of divided region image frames of the plural divided region moving image data series corresponding to one of the divided regions based on  
25 the addition ID information, compose the successively selected divided region image frames corresponding to said one of the divided regions with successively selected divided region image frames corresponding to another one of the divided  
30 regions, and output the composed divided region image frames as the new moving image data series.

7. The digital watermark-containing moving image transmission system as claimed in any  
35 one of claims 4 through 6, further comprising:

means for performing redundant encoding on the addition ID information beforehand.

8. A digital watermark-containing moving image transmission method for storing and displaying digital moving image data, the method comprising the  
5 steps of:

inputting one type of moving image data;  
embedding a plurality of differing sets of digital watermark information into the input moving image data, creating a plurality of watermark-  
10 containing moving image data series, and encoding the created watermark-containing moving image data series;

generating a new moving image data series from the watermark-containing moving image data series based on addition ID information including  
15 coded information corresponding to at least one of moving image identification information, time/date information, and user information;

decoding and displaying the generated  
20 moving image data series; and

dividing the displayed moving image data series into a plurality of regions and detecting the addition ID information for each of the divided regions using a digital watermark detecting circuit.  
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9. A digital watermark-containing moving image transmission method for transmitting stored digital moving image data via a network and reproducing the digital moving image data at a  
30 terminal that is connected to the network, the method comprising:

steps performed by an image server connected to the network, which steps include  
inputting one type of moving image  
35 data;

embedding a plurality of differing sets of digital watermark information into the input

moving image data, creating a plurality of watermark-containing moving image data series, and encoding the created watermark-containing moving image data series;

5                   generating a new moving image data series from the watermark-containing moving image data series based on addition ID information including coded information corresponding to at least one of moving image identification information,  
10                   time/date information, and user information; and  
                    delivering the generated moving image data series to the network;

                    steps performed by the terminal, which steps include decoding and displaying the moving  
15                   image data series delivered from the image server via the network; and

                    steps performed by an addition ID information detecting apparatus connected to the terminal, which steps include dividing the moving  
20                   image data series displayed by the terminal into a plurality of regions and detecting the addition ID information for each of the divided regions using a digital watermark detecting circuit.

25                   10. A digital watermark-containing moving image transmission method for transmitting stored digital moving image data via a network and reproducing the digital moving image data at a terminal that is connected to the network, the  
30                   method comprising:

                    steps performed by an image server connected to the network, which steps include  
                    inputting one type of moving image data; and

35                   embedding a plurality of differing sets of digital watermark information into the input moving image data, creating a plurality of

watermark-containing moving image data series,  
encoding the created watermark-containing moving  
image data series, and delivering the encoded  
watermark-containing moving image data series to the  
5 network;

steps performed by at least one delivery  
network node on the network, which steps include  
generating a new moving image data  
series from the watermark-containing moving image  
10 data series based on addition ID information  
including coded information corresponding to at  
least one of moving image identification information,  
time/date information, and user information; and  
delivering the generated moving image  
15 data series to the terminal via the network;  
steps performed by the terminal, which  
steps include decoding and displaying the moving  
image data series received via the network; and  
steps performed by an addition ID  
20 information detecting apparatus connected to the  
terminal, which steps include dividing the moving  
image data series displayed at the terminal into a  
plurality of regions and detecting the addition ID  
information for each of the divided regions using a  
25 digital watermark detecting circuit.

11. An information processing apparatus  
that is configured to store and display digital  
moving image data, the apparatus comprising:  
30 ID information adding means for generating  
a new moving image data series from a plurality of  
moving image data series corresponding to identical  
video contents having differing identification  
information added thereto as digital watermarks, the  
35 new moving image data series being generated based  
on addition ID information including coded  
information corresponding to at least one of moving

image identification information, time/date information, and user information.

12. An information processing apparatus  
5 that is configured to transmit stored digital moving image data via a network, the apparatus comprising:  
moving image input means for inputting one type of moving image data;  
watermark-containing data generating means  
10 for embedding a plurality of differing sets of digital watermark information into the input moving image data, creating a plurality of watermark-containing moving image data series, and encoding the created watermark-containing moving image data  
15 series; and  
ID information adding means for generating a new moving image data series from the watermark-containing moving image data series based on addition ID information including coded information  
20 corresponding to at least one of moving image identification information, time/date information, and user information.

13. The information processing apparatus  
25 as claimed in claim 11 or 12, wherein  
the ID information adding means is configured to successively select one from a plurality of image frames of the moving image data series based on the addition ID information and  
30 output the successively selected image frames as the new moving image data series.

14. The information processing apparatus  
as claimed in claim 11 or 12, wherein  
35 the ID information adding means is configured to successively select one group from a plurality of groups of image frames of the moving



image data series based on the addition ID information and output the successively selected group of image frames as the new moving image data series.

5

15. The information processing apparatus as claimed in claim 11 or 12, wherein

each of a plurality of image frames of the moving image data series is spatially divided into a plurality of regions, and a plurality of divided region moving image data series are generated for each of the divided regions; and

the ID information adding means is configured to successively select one from a plurality of divided region image frames of the divided region moving image data series corresponding to one of the divided regions based on the addition ID information, compose the successively selected divided region image frames corresponding to said one of the divided regions with the successively selected divided region image frames corresponding to another one of the divided regions, and output the composed divided region image frames as the new moving image data series.

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16. The information processing apparatus as claimed in any one of claims 13 through 15, further comprising:

means for performing redundant encoding on the addition ID information beforehand.

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17. A communication control apparatus in a system including a server and a terminal that are connected to a network, the apparatus comprising:

means for receiving a plurality of watermark-containing moving image data series from the server or another communication apparatus;

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ID information adding means for generating a new moving image data series from the received watermark-containing moving image data series based on addition ID information including coded  
5 information corresponding to at least one of moving image identification information, time/date information, and user information; and  
moving image delivering means for delivering the moving image data series generated by  
10 the ID information adding means to the terminal or another communication control apparatus.

18. The communication control apparatus as claimed in claim 17, wherein  
15 the moving image identification information includes at least one of content ID and copyright ID information unique to the moving image data, and ID information unique to the server corresponding to a sender of the moving image data.

20  
19. The communication control apparatus as claimed in claim 17, wherein  
the time/date information corresponds to information pertaining to a time/date when the new  
25 moving image data series is generated by the ID information adding means.

20. The communication control apparatus as claimed in claim 17, wherein  
30 the user information corresponds to ID information unique to the terminal.

21. The communication control apparatus as claimed in claim 17, wherein  
35 the addition ID information further includes coded information corresponding to ID information unique to the communication control

apparatus in addition to at least one of the moving image identification information, time/date information, and user information.

5                   22. The communication control apparatus  
as claimed in claim 17, wherein  
                  the ID information adding means is  
configured to successively select one from a  
plurality of image frames of the moving image data  
10 series based on the addition ID information and  
output the successively selected image frames as the  
new moving image data series.

                  23. The communication control apparatus  
15 as claimed in claim 17, wherein  
                  the ID information adding means is  
configured to successively select one group from a  
plurality of groups of image frames of the plural  
moving image data series based on the addition ID  
20 information and output the successively selected  
group of image frames as the new moving image data  
series.

                  24. The communication control apparatus  
25 as claimed in claim 17, wherein  
                  each of a plurality of image frames of the  
moving image data series is spatially divided into a  
plurality of regions, and a plurality of divided  
region moving image data series is generated for  
30 each of the divided regions; and  
                  the ID information adding means is  
configured to successively select one from a  
plurality of divided region image frames of the  
divided region moving image data series  
35 corresponding to one of the divided regions based on  
the addition ID information, compose the  
successively selected divided region image frames

corresponding to said one of the divided regions  
with the successively selected divided region image  
frames corresponding to another one of the divided  
regions, and output the composed divided region  
5 image frames as the new moving image data series.

25. The communication control apparatus  
as claimed in any one of claims 21 through 24,  
further comprising:

10 means for performing redundant encoding on  
the addition ID information beforehand.

26. A digital watermark-containing moving  
image processing program run on a computer for  
15 controlling the computer to execute a process of  
storing and displaying digital moving image data,  
the program being executed by the computer to  
perform:

an ID information adding procedure for  
20 generating a new one from a plurality of moving  
image data series corresponding to identical video  
contents having differing identification information  
added thereto as digital watermarks, the new moving  
image data series being generated based on addition  
25 ID information including coded information  
corresponding to at least one of moving image  
identification information, time/date information,  
and user information.

30 27. A digital watermark-containing moving  
image processing program run on a computer for  
controlling the computer to execute a process of  
storing and displaying digital moving image data,  
the program being executed by the computer to  
35 perform:

a moving image input procedure for  
inputting one type of moving image data;

a watermark-containing data generating procedure for embedding a plurality of differing sets of digital watermark information into the input moving image data, creating a plurality of  
5 watermark-containing moving image data series, and encoding the created watermark-containing moving image data series;

an ID information adding procedure for generating a new moving image data series from the  
10 watermark-containing moving image data series based on addition ID information including coded information corresponding to at least one of moving image identification information, time/date information, and user information; and

15 a moving image delivering procedure for delivering the moving image data series generated in the ID information adding procedure to a network.

28. A digital watermark-containing moving  
20 image processing program run on a computer that is configured to function as a communication control apparatus in a system including a server and a terminal that are connected to a network, the program being executed by the computer to perform:

25 a procedure for receiving a plurality of watermark-containing moving image data series from the server or a first other communication control apparatus;

an ID information adding procedure for  
30 generating a new moving image data series from the received watermark-containing moving image data series based on addition ID information including coded information corresponding to at least one of moving image identification information, time/date  
35 information, and user information; and

a moving image delivering procedure for delivering the moving image data series generated in

the ID information adding procedure to the terminal or a second other communication control apparatus.

29. A computer-readable medium storing a  
5 digital watermark-containing moving image processing  
program run on a computer for controlling the  
computer to execute a process of storing and  
displaying digital moving image data, the digital  
watermark-containing moving image processing program  
10 being executed by the computer to perform:

an ID information adding procedure for  
generating a new one from a plurality of moving  
image data series corresponding to identical video  
contents having differing identification information  
15 added thereto as digital watermarks, the new moving  
image data series being generated based on addition  
ID information including coded information  
corresponding to at least one of moving image  
identification information, time/date information,  
20 and user information.

30. A computer-readable medium storing a  
digital watermark-containing moving image processing  
program run on a computer for controlling the  
25 computer to process digital moving image data having  
digital watermarks embedded therein, the digital  
watermark-containing moving image processing program  
being executed by the computer to perform:

a moving image input procedure for  
30 inputting one type of moving image data;  
a watermark-containing data generating  
procedure for embedding a plurality of differing  
sets of digital watermark information into the input  
moving image data, creating a plurality of  
35 watermark-containing moving image data series, and  
encoding the created watermark-containing moving  
image data series;

an ID information adding procedure for  
generating a new moving image data series from the  
watermark-containing moving image data series based  
on addition ID information including coded  
5 information corresponding to at least one of moving  
image identification information, time/date  
information, and user information; and  
a moving image delivering procedure for  
delivering the moving image data series generated in  
10 the ID information adding procedure to a network.

31. A computer-readable medium storing a  
digital watermark-containing moving image processing  
program run on a computer that functions as a  
15 communication control apparatus in a system  
including a server and a terminal that are connected  
to a network, the digital watermark-containing  
moving image processing program being executed by  
the computer to perform:

20 a procedure for receiving a plurality of  
watermark-containing moving image data series from  
the server or a first other communication control  
apparatus;

an ID information adding procedure for  
25 generating a new moving image data series from the  
received watermark-containing moving image data  
series based on addition ID information including  
coded information corresponding to at least one of  
moving image identification information, time/date  
30 information, and user information; and

a moving image delivering procedure for  
delivering the moving image data series generated in  
the ID information adding procedure to the terminal  
or a second other communication control apparatus.